

<i>Date</i>	<i>LNL, 23-Nov-17</i>
<i>Meeting Topic</i>	<i>LNL Users General Assembly</i>
<i>Participants</i>	
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AGENDA:

1. Welcome and News from the User Board. News from EURISOL-DF initiative.
2. News from LNL Director.
3. Status of TAP and SPES installation.
4. News from TAP beamtime coordinator.
5. Status of accelerators and experimental program at AN/CN complex.
6. Report from LNL User Service.
7. The ENSAR2 program.
8. Report from experiments:
 - a. Galileo
 - b. PISOLO
 - c. PRISMA
 - d. EXOTIC
 - e. SIRAD
 - f. GARFIELD
 - g. New instrumentation for SPES
9. Final Discussion.

All the material presented at the meeting can be found in the indico page of the event:
<https://agenda.infn.it/conferenceDisplay.py?confId=14293>

Topic 1: (see slides)

Welcome and News from User Board (UB). News from EURISOL-DF initiative.

The Chair of the LNL UB welcomed the LNL Users, reminded the role of the UB committee and introduced the members of the committee. She also updated on the status of the LNL Users and **invited new users to subscribe.**

Meetings with the director and with the head of the LNL divisions were held regularly, with involvement in important decisions (cancellation of PAC meeting, location of new set-ups). The request of being invited to the LNL council meetings was accepted by the director.

“End of experiment reports”. Those collected are mainly involving activities at AN2000/CN owing to the long unavailability of the TAP complex. Issues are reported about the energy and intensity calibrations of the beams. A positive feedback on the operators and on the new microbeam control system was underlined.

A survey of the main TAP set-ups, proposed to the coordinators of the set-ups by the UB, pointed out the impact of long breaks of the experimental activity as a consequence of the programmed shutdowns. **A request to keep the TAP complex as much alive as possible has been put forward. The LNL UB wishes for the most effective and coordinated decisions about when and how long the main LNL machines will suspend their operations due to SPES installation commitments of the Accelerator Division.**

EURISOL-DF initiative

Sara Pirrone (EURISOL-DF representative for INFN) could not attend the meeting in person, therefore she sent some slides reminding the EURISOL-DF initiative and the importance to prepare strong scientific cases for RIB science and applications, support, upgrade, optimize and coordinate the involved facilities, foster R&D on RIB production and Instrumentation towards EURISOL, support user driven policy (User Group). A project to get EURISOL-DF in ESFRI by 2019 is set up, in order to obtain funds for the period 2021-2022.

Topic 2:

News from LNL Director

The situation of the personnel is critical. Even if the total number of employees did not change dramatically in the last 10 years, today more than 25% of human resources have fixed term contracts or grants. Two new research staff members started their activity in 2017.

In general, the budget is OK even if INFN funds was severely cut. However, there is no space for contingency.

IFMIF RFQ are completed and currently operating in Japan.

The SPES schedule is confirmed, together with the production of radio-pharmaceuticals in ISOL bunker2. Scheduling of the installation was detailed by Bisoffi. The good work of the system integration office was acknowledged.

The new PAC members have been designated by the INFN-directorate: Claes Fahlander (chair) (Lund University, S), Giuseppe Cardella (INFN Catania, I), Bogdan Fornal (IFJ PAN, Krakow, PL), Angela Gargano (INFN Napoli, I), Kouichi Hagino (Tohoku U, JP), Bertram Blank (CEN Bordeaux, F), Wilton Catford (University of Surrey, UK). Continuity with last PAC members and with SAC members has been pursued.

The possibility of opening the next PAC meeting, foreseen in late spring 2018, to proposal for non-reaccelerated SPES beams was introduced. This topic triggered a long discussion in the afternoon.

Topic 3:

Accelerator Division Report

G. Bisoffi reported on the limited number of beam-on-target hours in 2017 owing to special maintenance of TANDEM-XTU in late 2016 and a major breakdown in March 2017. PIAVE maintenance lasted up to July 2017 (2 years) and ALPI special maintenance till October 2017.

Several interventions performed on the TANDEM regarded links geometry and material, and checks of the quality of the insulating gas. No “shooting gun” found that could explain the limited working hours of the current Laddertron. New machining of links and bushings, together with recalibration and re-positioning of humidity detectors have been performed.

Several upgrades in ALPI and maintenance of PIAVE have been concluded.

The proposed scheduling for the TAP complex is:

- PIAVE is under conditioning. Start of beam extraction on Dec. 4th.
- 3 experiments scheduled in December, starting from 6th. PIAVE-ALPI operations will continue until the end of March 2018.
- Tandem conditioning 05-25/02/2018.
- Beam for experiments starting on 26/02 up to May 2018.
- June->October TAP complex shutdown to enable installations for SPES.
- Tandem may restart in November 2018.

- Restart of PIAVE-ALPI operations in the beginning 2019 up to summer 2019.

As for SPES: the ADIGE injector installation has already started, with the placement of dipoles and quadrupoles in exp. Hall III. The installation, which will partly involve also TANDEM operators, is expected to be completed in the third part of 2020.

1+ beamline time schedule foresees the commissioning of the line and ion source in 2019 to start providing non-post accelerated beams in 2020.

Topic 4:

Report from TAP beamtime coordinator.

Substantially agrees with the previous report. See slides on the web reporting actual numbers.

Topic 5:

Status of the accelerators and experimental program at AN/CN complex.

The usage of the machines for the current year has been reported in comparison with the last 7 years of operation. Even though a good amount of very good quality publications is produced yearly (see presentation for details), a constant increase of the machines' failures and a constant decrease of users is clearly visible. This must be ascribed to the ageing of the machines themselves, that are no more able to provide state-of-the-art beams in terms of energy resolution, stability, reliability, reproducibility and beam spot size (eg. micrometer or sub-micrometer). V. Rigato introduced the idea of a new low-energy machine (range 0.1-6 MV) for applications and basic research to be possibly coupled to the non-reaccelerated beam branch of the SPES- β facility. The cost of the new machine, capable of attracting an already available list of users, and new users from EU could be of the order of 5 Meuro + about 5 Meuro for the infrastructure. The LNL director welcomes and supports the idea but underlines the difficulty of asking to INFN such a budget during this specific phase of LNL commitments with the SPES project.

Topic 6:

Updates from LNL User Service

The LNL User Service has three main aims: to support experimental set-ups, to maintain HPGe detectors and to produce targets for experiments.

Upgrades in the target laboratory are on-going. The User Service is considering, for next year, to buy a new equipment for target production, in order to exploit the ionized jet deposition technique, in addition to standard rolling and evaporation.

REMINDER: the target request has to be filled in at the time the proposal is submitted to the PAC committee.

For changes of electric and hydraulic plants in the target areas, or for the installation of new experimental setups preliminary mandatory steps for any request are: the definition of the intervention, the identification of a contact person and an estimate of costs.

Topic 7:

The ENSAR2 program

LNL is part of the TRANSNATIONAL ACCESS PROGRAM. Owing to the limited beamtime available, a limited number of funds were requested for experiments at TAP, while the largest fraction of requests came from AN/CN. More globally, the summed requests of LNL and LNS are in line with the project timeline.

It is reminded that: eligible research teams need to have a spokesperson and most of the group coming from non-Italian institutions. Extra-European institutions may also apply. The request must be submitted together with the proposal.

PAC members belonging to the User Selection Panel (ENSAR2) are A.Gargano and C.Fahlander.

Topic 8:

Report from experiments

See presentations on the website.

In addition to the status of the existing setups, the new installation of an Active Target for SPES in the experimental Hall III is presented. The status of the installations in this area have also been presented.

Topic 9:

Open discussion

The discussion focused on two main points:

1. timeliness of opening the PAC call to SPES- β non-reaccelerated beams already in 2018;
2. possibility of using TAP complex in 2020 during the first period of SPES operations and, more generally, use of the stable beams facilities after SPES commissioning.

Point 1: to date it is not clear when the SPES facility will start being considered operational and, therefore, SPES beams will be included in the list of available beams in the PAC call for proposals. The discussion touches several faces of the problem.

The first aspect to consider is that the list of beams will be only composed of “evaluated numbers” until each single beam will be developed. In this sense, whenever the call is opened, at the beginning the PAC will not be able to consider the real feasibility of each experiment before a beam development test. But it is impossible to develop all the beams that have been mentioned in the several Lols evaluated by the SPES SAC up to now, before opening any call for proposals either with reaccelerated beams or with non-reaccelerated ones.

It is noted, on the other hand, that the preliminary list of SPES beams is very reasonably scaled from the Oak Ridge data. This means that the intensity estimates are based on reliable experimental numbers. Since there are beams that can be produced in safer and easier conditions, the User community wishes to have a day-1 beams list for which intensity and purity estimates can be considered reliable by the SPES source experts.

Regarding the best timing for the PAC to start evaluating proposals for SPES, there are two approaches. On one side, there is the need for approving scientific proposals as soon as possible, in order to allow the experimental groups to plan their activities both in terms of budget and time allocation. On the other side, there is the fear that approving experiments too early might put too much pressure and expectations on the facility, before the actual installation is completed.

Suggestions coming from the Users include the idea of not opening the next PAC (mid 2018) to the SPES (non-reaccelerated) beams but postpone this to the following call (end 2018 – beginning 2019). Another solution could be to open the call only to internal groups.

It has been also underlined that the set-ups which will be able to use the first non-accelerated beams will also require some beamtime for commissioning.

Point 2: Users confirm the interest in pursuing their research activity with stable beams provided by the present facilities even when SPES becomes operational, exploiting SPES downtimes (target cooling and replacement, maintenance, etc.). Some Users strongly promote the parallel, if compatible, operation of

SPES with the stable beam machines. Possible scenarios in which two beams can be delivered simultaneously could be foreseen.

The Users understand the high manpower demand related to this working mode and confirm their opening to support TAP personnel replacing one out of two shifters, once the beam transport and delivery are completed.

A meeting with the director, research division, accelerator division, TAP beamtime coordinator is envisaged to discuss these issues in the beginning of next year.

Final remarks:

LNL Users have been very pleased to hear from the Accelerator Division that the request for Uranium beams authorization have been put in place.